

TEST REPORT

Product Name : Camera Hub G5 Pro (Wi-Fi)

Model Number : CH-C07E, CH-C07D

Prepared for : Lumi United Technology Co., Ltd.
Address : Room 801-804, Building 1, Chongwen Park, Nanshan
iPark, No. 3370, Liuxian Avenue, Fuguang Community,
Taoyuan Residential District, Nanshan District, Shenzhen,
China

Prepared by : EMTEK (SHENZHEN) CO., LTD.
Address : Building 69, Majialong Industry Zone, Nanshan District,
Shenzhen, Guangdong, China

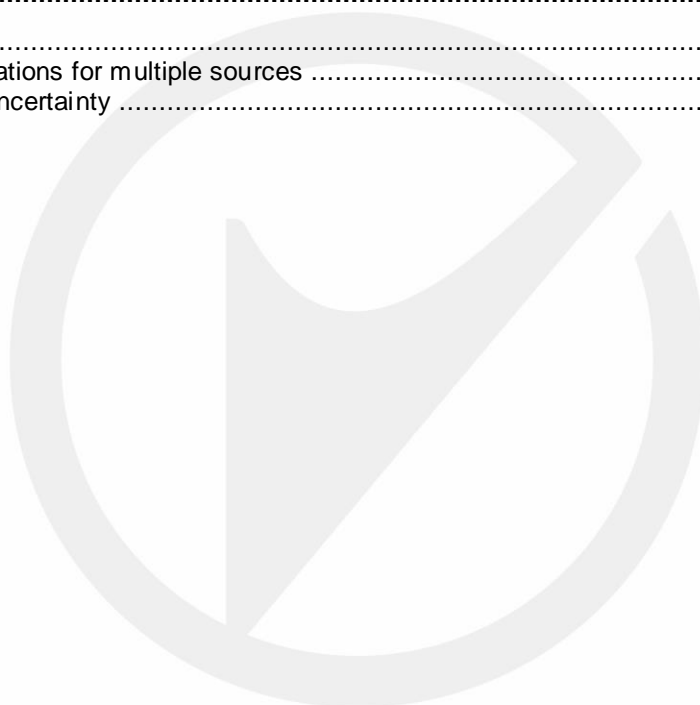
Tel: (0755) 26954280
Fax: (0755) 26954282

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Modified Information

Version	Report No.	Revision Date	Summary
	ENS2411080085W02307R	/	Original Report



1. TEST RESULT CERTIFICATION

Applicant : Lumi United Technology Co., Ltd
Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No. 3370, Liuxian
Address : Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China
Manufacturer : Lumi United Technology Co., Ltd
Room 801-804, Building 1, Chongwen Park, Nanshan iPark, No. 3370, Liuxian
Address : Avenue, Fuguang Community, Taoyuan Residential District, Nanshan District, Shenzhen, China
EUT : Camera Hub G5 Pro (Wi-Fi)
Model Name : CH-C07E, CH-C07D
Trademark : Aqara

Measurement Procedure Used:

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
EN IEC 62311: 2020 EN 50665:2017	PASS
Radiation Protection Series S-1 (Rev. 1): Standard for Limiting Exposure to Radiofrequency Fields-100 kHz to 300 GHz	PASS
AS/NZS 2772.2:2016 Amd 1: 2018	PASS

The device described above is tested by EMTEK (SHENZHEN) CO., LTD. to determine the maximum emission levels emanating from the device and the severe levels of the device can endure and its performance criterion. This report shows the EUT to be technically compliant with the Radiation Protection Series S-1 (Rev. 1) and AS/NZS 2772.2 and EN IEC 62311: 2020 requirements. The test results are contained in this report and EMTEK (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these tests.

This report applies to above tested sample only and shall not be reproduced in part without written approval of EMTEK (Shenzhen) Co., Ltd.

Date of Test : November 12, 2024 to November 20, 2024

Prepared by : Una Yu
Una Yu/Editor

Reviewer : Joe Xia
Joe Xia/Supervisor

Approved & Authorized Signer : Lisa Wang
Lisa Wang/Manager

2. EUT DESCRIPTION

Product:	Camera Hub G5 Pro (Wi-Fi)
Model Number:	CH-C07E, CH-C07D

BLE Version:	V5.1
Modulation:	GFSK
Frequency Range:	2402MHz-2480MHz
Number of Channels:	40 Channels
Antenna Type:	FPC Antenna
Antenna Gain:	0 dBi

Equipment Type:	Wifi2.4G with 2412MHz -2472MHz Band Wifi2.4G with 2422MHz -2462MHz Band	
WLAN Support:	802.11b 802.11g 802.11n(20MHz channel bandwidth) 802.11n(40MHz channel bandwidth)	
Modulation:	DSSS with DBPSK/DQPSK/CCK for 802.11b OFDM with BPSK/QPSK/16QAM/64QAM for 802.11g/n	
Frequency Range:	2412-2472MHz for 802.11b 2412-2472MHz for 802.11g	2412-2472MHz for 802.11n(HT20) 2422-2462MHz for 802.11n(HT40)
Number of Channels:	13 Channels for 802.11b 13 Channels for 802.11g	13 Channels for 802.11n(HT20) 9 Channels for 802.11n(HT40)
Smart System:	SISO	
Antenna Type:	FPC Antenna	
Antenna Gain:	0 dBi	

WIFI Type:	WIFI 5G with 5150~5250MHz Band
WLAN Supported:	IEEE 802.11a IEEE 802.11n(20MHz channel bandwidth) IEEE 802.11n(40MHz channel bandwidth) IEEE 802.11ac(20MHz channel bandwidth) IEEE 802.11ac(40MHz channel bandwidth) IEEE 802.11ac(80MHz channel bandwidth)
Test Modulation:	IEEE 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM)

	IEEE 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Antenna Type:	FPC Antenna
Antenna Gain:	0.5 dBi
Power Supply:	5V 2A
Temperature Extreme Range:	-30°C ~50°C

Note: For more details, please refer to the user's manual of the EUT.



3. FACILITIES AND ACCREDITATIONS

3.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

Building 69, Majialong Industry Zone District, Nanshan District, Shenzhen, China

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

3.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

3.3 LABORATORY ACCREDITATIONS AND LISTINGS

Site Description

Name of Firm : EMTEK (SHENZHEN) CO., LTD.

Site Location : Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China

4. GENERAL PRODUCT INFORMATION

4.1 BASIC RESTRICTION

Reference Levels

Council Recommendation 99/519/EC Annex III

Reference levels for electric, magnetic and electromagnetic fields (0 Hz to 300GHz)

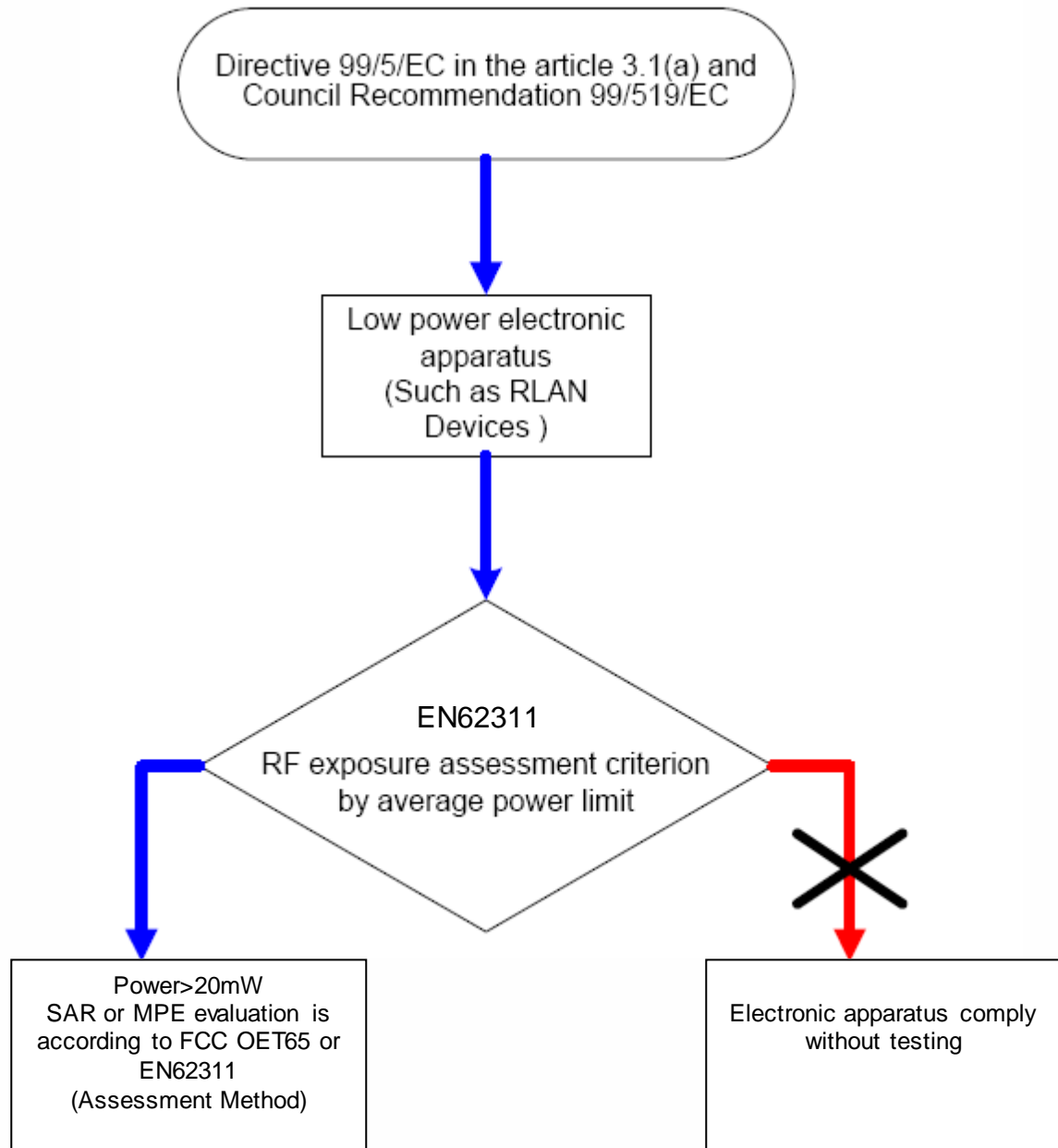
Frequency range	E-field strength (V/m)	H-field strength (A/m)	B-field (μT)	Equivalent plane wave power density Seq (W/m ²)
0-1 Hz	-	3.2×10^4	4×10^4	-
1-8 Hz	10000	$3.2 \times 10^4 / f^2$	$4 \times 10^4 / f^2$	-
8-25 Hz	10000	$4000 / f$	$5000 / f$	-
0.025-0.8 kHz	$250 / f$	$4 / f$	$5 / f$	-
0.8-3 kHz	$250 / f$	5	6.25	-
3-150 kHz	87	5	6.25	-
0.15-1 MHz	87	$0.73 / f$	$0.92 / f$	-
1-10 MHz	$87 f^{1/2}$	$0.73 / f$	$0.92 / f$	-
10-400 MHz	28	0.073	0.095	2
400-2000 MHz	$1.375 f^{1/2}$	$0.0037 f^{1/2}$	$0.0046 f^{1/2}$	$f / 200$
2-300 GHz	61	0.16	0.2	10

Notes:

1. As indicated in the frequency range column.
2. For frequencies between 100kHz and 10 GHz, Seq, E2, H2 and B2 are to averaged over any six-minute period.
3. For frequencies exceeding 10 GHz, Seq, E2, H2, and B2 are averaged over any 68/1.05-minute period(in GHz).
4. No E-field value is provided for frequencies<1 Hz, which are effectively static electric fields. For most people the annoying perception of surface electric charges will not occur at field strengths less than 25 kV/m. Spark discharges causing stress or annoyance should be avoided.

4.2 EVALUATION ROUTINE

Low Power Electronic Apparatus for RF exposure evaluation routine



5. TEST RESULT

5.1 DETAILED RESULTS

5.1.1 MPE Evaluation

The antenna of the product, under normal use condition is at least 20 cm away from the body of the user. Warning statement to the user to keeping at least 20 cm separation distance and the prohibition of operating to a person has been printed on the user's manual. So, this product under normal use is located on electromagnetic far field between the human body.

Far Field Calculation Formula:

$$E = \eta_0 H = \frac{\sqrt{30 P G(\theta, \phi)}}{r}$$

G=antenna gain relative to an isotropic antenna
 θ, ϕ =elevation and azimuth angles to point of investigation
r=distance from observation point to the antenna
 η_0 =Characteristic impedance of free space

5.1.2 Summary of Results

The maximum power at a distance of 0.2 m are shown as below:

Mode	Frequency (MHz)	ANT Gain (dBi)	Max EIRP Power (dBm)	Tune-up EIRP Power (dBm)	Max Antenna Transmit Power (W)	Calculated RF Exposure: E(V/m)	Limit (V/m)	Verdict
ZIGBEE	2405	0.32	7.33	8	5.4	2.01	61.00	PASS
THREAD	2405	0.32	7.55	8	5.7	2.07	61.00	PASS
BLE	2480	0	9.66	8	9.2	2.63	61.00	PASS
2.4G WiFi	2442	0	15.08	16	32.2	4.92	61.00	PASS
5G WIFI	5190	0.5	15.49	16	35.4	5.15	61.00	PASS

5.2 EXPOSURE CALCULATIONS FOR MULTIPLE SOURCES

Exposure field strengths can be compared to the reference levels on an rss basis:

$$\sum_{i=100 \text{ kHz}}^{1 \text{ MHz}} \left(\frac{E_i}{c} \right)^2 + \sum_{i>1 \text{ MHz}}^{300 \text{ GHz}} \left(\frac{E_i}{E_{L,i}} \right)^2 \leq 1$$

where

E_i is the electric field strength at frequency i ;

$E_{L,i}$ is the electric field reference level;

The worst case considered in the Simultaneous Transmission section is as follows :

No.	Mode	E(V/m)	Calculation result	Limit	Coclusion
1	5G WiFi	5.15	0.13	1	Pass
	BLE	2.63			

According to the Table above, we can conclude that the calculation results of all simultaneous transmission possibilities are less than 1, so it is into compliance.

5.3 MEASUREMENT UNCERTAINTY

Extended Uncertainty (k=2) 95% 0.5dB

--- End of Report ---